

**X PERSEI: THE X-RAY HALO AND SPECTRUM OF A HIGH-LATITUDE X-  
RAY BINARY**

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The observations were completed on February 25, 2003. Although the source was in the FOV for 31.4 ksec, only 18.2 ksec of data were usable due to a strong flare in the first part of the observations. We have extracted the X-ray halo from the good portion of the data, and were then faced with the problem of calibrating the far-off-axis point spread function, which is needed only for X-ray halo analysis; the same problem affected Chandra halo observations. We used data from 3C273, MCG 6-30-15, LMC X-1, and Her X-1 to measure the PSF, and found that it is reasonably well fit with a power law of the form  $\text{PSF}(\theta) = A \theta^{-G}$ , where  $A = 0.0034 \text{ arcmin}^{-2}$ , and  $G = 3.05$  for energies between 1-4 keV. This suggests there are fewer large dust grains along the line of sight. When fitting the spectrum of X Persei, we found  $N_H = 3 \times 10^{21} \text{ cm}^{-2}$ , as expected. However, the X-ray halo (using a Mathis, Rumpl, Nordsieck 1977 dust model) required at most a column density of  $1.4 \pm 0.1 \times 10^{21} \text{ cm}^{-2}$ ; other models required sightline to X Per than would have been expected. In addition, a smoothly distributed dust model fit the observations better than a single cloud model, also against our expectations. We are in the process of writing a paper to be submitted to ApJ with these results, and will also present them at the 2004 HEAD meeting in New Orleans.